UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Forest Insect & Disease Management
P.O. Box 5895, Asheville, NC 28803

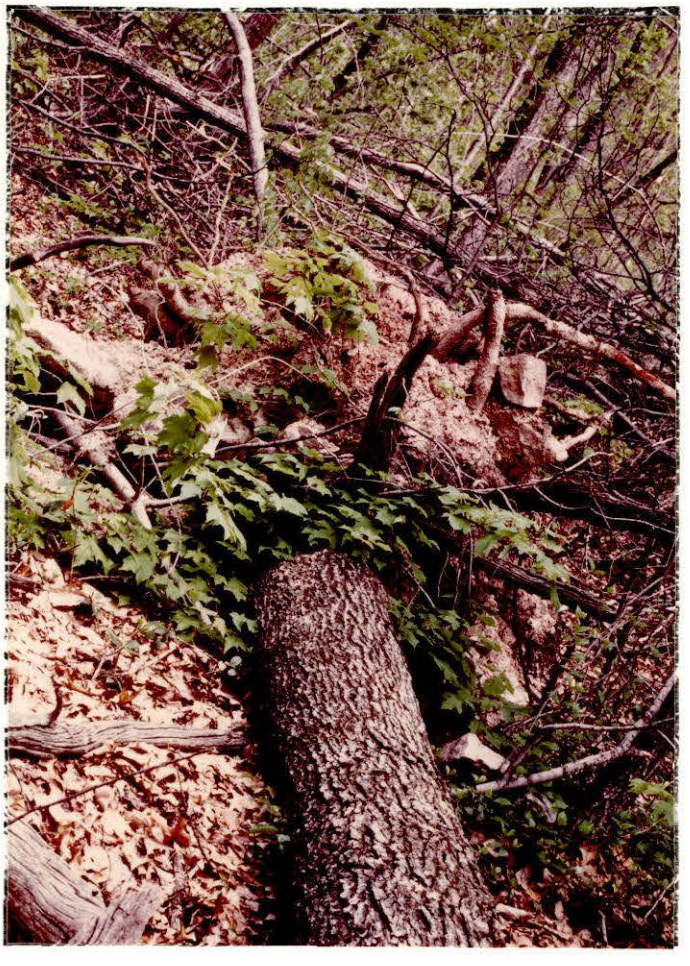
REPLY TO: 5230 Evaluation
(Report No. 78-1-9)

June 27, 1978

SUBJECT: Evaluation of Possible Insect & Disease Problems in Ice Damaged Timber on the George Washington NF Va.

TO: George M. Smith, Forest Supervisor, George Washington NF

On May 23 and 24, Pat Barry and Bob Anderson, FIDM, Asheville Field Office, met with Bob Brooks and Jack Williams, Timber Management Staff, George Washington National Forest, to evaluate potential insect and disease problems associated with the Easter ice storm. Two representative areas with examples of severe, moderate, and light damage were examined in the field. Several different types of damage were present in each of the areas. The damage types noted were:



1. Uprooted trees.

2. Root spring trees.

3. Main stem breakage.

4. Broken tops and/or limbs.

5. Major wounds.

6. Bent trees that will not recover.

The uprooted trees will be subjected to degrade caused by stains, decays, and secondary insects such as borers, powder post and ambrosia beetles, if not salvaged soon. The longer salvage is delayed the greater the amount of degrade. The amount of degrade that is acceptable is dependent on species and local markets. The following table gives a sequence of invading organisms:

Species	Time	
	1978	1979
Pine	Ips, Sawyers, Blue Stain	Decay
Oak-Hickory	Wood Borers Ambrosia Beetles Stains	Decay of Sapwood
Maple-Poplar and Basswood	Wood Borers Ambrosia Beetles Stains	Decay of Sap & Heartwood

The root sprung hardwoods will not die immediately but will show decline symptoms over a period of several years. These trees may be invaded by root rot organisms such as Armillaria mellea, subject to drought stress

and invasion by insects of weakened trees such as the two-lined chestnut borer. The root sprung pine trees will be invaded by Ips beetles and blue stain fungi. These trees could serve as a habitat for the endemic population of southern pine beetle in the area, and if conditions become favorable an outbreak could occur. They could also be attacked by and support high populations of the black turpentine beetle.

Trees with main stem breakage will be invaded by a variety of insects and diseases. The hardwoods will not die but will be severely degraded by stain and decay fungi. The pine will be invaded and killed by Ips spp. and blue stain fungi. These trees could also support the southern pine beetle at this time, however, they will very shortly be unsuitable hosts due to rapid deterioration. The black turpentine beetle could also be a potential problem in these trees.

Trees with 3-inch or larger broken branches will be invaded by stain and decay fungi at the point of injury. The stains will move vertically about 6 to 12 inches per year in the oaks-hickories and pines, and about 12 to 18 inches per year in the poplar, basswood and maple type. Decay fungi will follow the stain fungi in about 8-10 years. Breaks smaller than 3 inches in diameter will not be invaded by decay fungi. Some of the dead branches in the tops of the pine species may be invaded by Ips spp. and blue stain fungi.

Many of the trees have wounds caused by falling tops, uprooted trees and major branch breakage. Wounds smaller than 6 inches in diameter, less than 144 square inches and that do not penetrate more than 2 inches into the sapwood will have some localized stain but no decay. Wounds that exceed these limits will have stains and decay that move at the rate described in the previous paragraph. Pine trees with major wounds to the lower bole and larger roots may be attacked by the black turpentine beetle.

Bent trees will not be attacked by either insects or diseases because of their condition.

Overall, trees in this area appeared to have been repeatedly damaged by natural factors such as ice storms, as evidence of major forking at several heights on the main stems. Ring shake may also be present in many of the trees but was not evident at the time of this examination. Another problem could be sun scald to thin barked species due to the large reduction in basal area in some of the heavily damaged stands.

The only possible buildup of insects or diseases that may occur in the affected stands and move to nonaffected stands would be bark beetles in the pine species.

MANAGEMENT RECOMMENDATIONS

1. Uprooted Trees - Salvage as soon as possible

2. Root Sprung Trees -

   a. Pine - salvage as soon as possible.

   b. Hardwood - those with major root reduction should be salvaged as soon as possible.

3. Main Stem Breakage - Salvage as soon as possible.

4. Broken Tops and/or Limbs - Trees with major tops and limb damage (3 inches or larger breaks) should be removed during future cutting cycles.

5. Major Wounds - These trees should be removed during future cutting cycles.

By examining the damaged stands using the above criteria, a decision on stand management can be made.

Forest Insect and Disease Management will plan to make an aerial detection flight of damaged pine throughout the storm area in mid- to late-June for possible bark beetle buildup.

Patrick Barry

For: HAROLD W. FLAKE
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